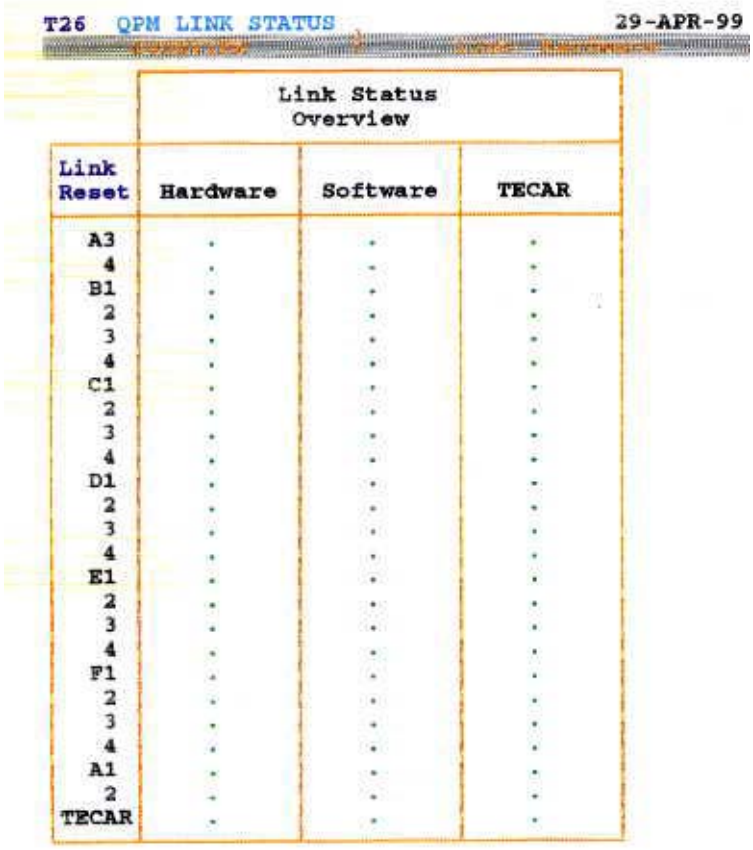
CHAPTER 10

Operating the Tevatron

This chapter deals with turning on the Tevatron ramp, injecting beam onto the proper orbit, quench recovery, change out procedures for various equipment, and turning off the Tevatron. Knowledge of these topics is very important to an operator because they are the most common occurrances.

Turning on the Tevatron

Before establishing a ramp to the power supplies several things must be done to ensure that the Tevatron will operate properly in the event that something unexpectedly happens to the machine. The crew chief will have access to a TeV power supply and QPM check out list. This list instructs the operator on how to check the various protection systems in place.



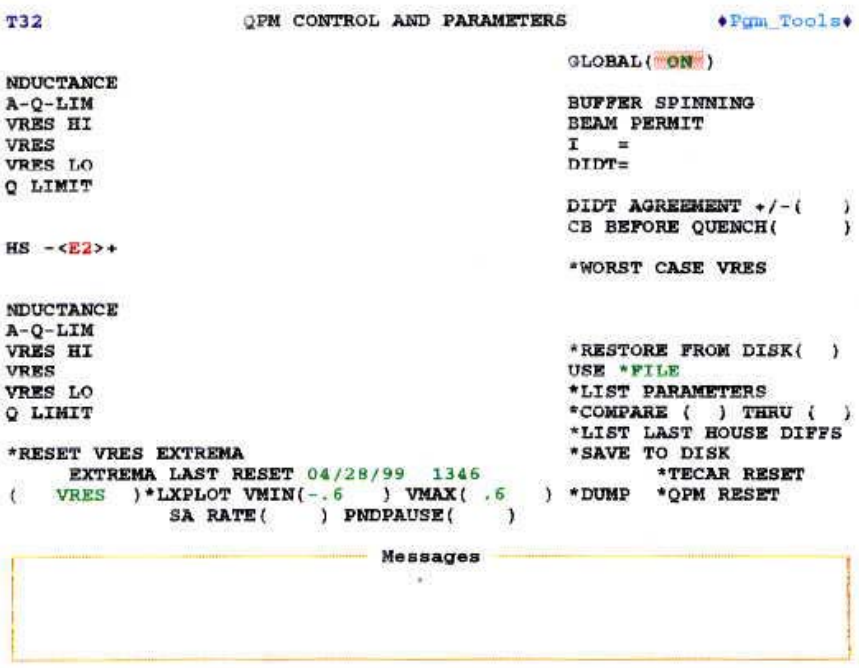
T26 QPM LINK STATUS 29-APR-99

Link Status Overview

Link Reset	Hardware	Software	TECAR
A3	.	.	.
4	.	.	.
B1	.	.	.
2	.	.	.
3	.	.	.
4	.	.	.
C1	.	.	.
2	.	.	.
3	.	.	.
4	.	.	.
D1	.	.	.
2	.	.	.
3	.	.	.
4	.	.	.
E1	.	.	.
2	.	.	.
3	.	.	.
4	.	.	.
F1	.	.	.
2	.	.	.
3	.	.	.
4	.	.	.
A1	.	.	.
2	.	.	.
TECAR	.	.	.

The QPM system is the first to be tested. From page T26 verify the QPM link is operational. Next, all of the QPM parameters are to be compared against a saved file. From T32 enter the file to be compared against the present QPM values (during collider

runs use ***Col*** and for fixed target runs use ***File***). Next to the word ***compare*** fill in the parentheses with A1 and F4. Interrupt on ***compare*** and this will begin a ring wide check of the parameters. When it is finished interrupt on ***list last house diffs*** and a list will be generated of all the locations where the values are different from the desired. All QPMs that differ will need their parameters restored from disk. Below is an example of T32.



Next, TECAR's overcurrent limits need to be set on T28. If the TeV is in fixed target mode then the limits are +3700 to –100 Amps and for collider +4107 to –100 Amps.

On T31 the QPM clocks need reset and the VFC scalars have to be calibrated. Clocks are always set first. Towards the top left side of page T31 toggle the field inside the parenthesis to read ***clocks***. Interrupt on ***reset*** and wait for all the clocks to reset. Next, interrupt on ***sample***. This will show if the QPM clock at each building is functioning. If all of the clocks are responding then issue a ***set***. After the clocks are set then toggle the parenthesis from clocks to scalars. Issue the ***reset*** and ***sample*** the data. A bad VFC channel will show in red and that card will need to be replaced. Any channel that shows yellow is noisy and the crew chief should be informed. Once all channels are within their tolerance issue the ***set*** command.

A hardwire loop redundancy test has to be performed. Call up page T27. On the right hand side of console 7 is the Tevatron loop controller. Push the loop test button so that the bypass and dump loops are continuous. This is evident when the LEDs at the top of

the controller are lit. If loop test does not make the loops continuous then issue a ***QPM reset*** on T27. This should make the loops continuous. On T27 interrupt on ***HWL test*** and take the ***caution***.